WHAT IS CLAIMED IS:

1. A portable device, comprising:

   a biometric voice sensor comprising a portion of an integrated circuit, wherein the voice sensor is configured to detect the speech of a user and to produce a signal responsive to the speech of the user; and

   a voice processing circuit comprising a portion of the integrated circuit, wherein the voice processing circuit is configured to receive the signal from the biometric voice sensor and to process the signal to extract the signal characteristics.

2. The device of claim 1, wherein the integrated circuit further includes memory for storing information indicative of at least one user's voice characteristics.

3. The device of claim 2, further comprising means for establishing a data link to download data from which the stored information is derived.

4. The device of claim 2, wherein the device uses the stored information to authenticate the user.

5. The device of claim 4, wherein the information is indicative of the voice characteristics of multiple users and wherein the device is configured to authenticate each of the multiple users.

6. The device of claim 5, wherein the device contains user specific profile information for each of the multiple users that enables user specific device functionality.

7. The device of claim 4, wherein the integrated circuit is configured to authenticate a user of the device by comparing the characteristics of the voice sensor signal to information stored in memory indicative of a predetermined password.

8. The device of claim 7, wherein the information stored in the memory is indicative of a user speaking a password and the integrated circuit is configured to authenticate a user by comparing the characteristics of the voice sensor signal to the information stored thereby determining whether the user is speaking the password.

9. The device of claim 2, wherein the stored information to identify the user.

10. The device of claim 2, wherein the integrated circuit is configured to execute a voice-transmitted command by comparing the characteristics of the voice sensor signal to information stored in the memory indicative of an user speaking the command.

11. The device of claim 2, wherein the integrated circuit is further configured to encrypt the voice sensor signal using an algorithm.

12. The device of claim 2, wherein the integrated circuit is configured to recognize the content of the user's speech.

13. The device of claim 12, wherein the recognized content is used to classify the speech by keywords.

14. The device of claim 2, wherein the device comprises a plastic frame in which the integrated circuit is embedded and wherein the plastic frame is compliant with ISO 7816.

15. The portable device of claim 2, wherein the voice sensor comprises a pressure sensor.

16. The portable device of claim 15, wherein the pressure sensor includes a membrane having a thickness in the range of approximately 10.0 to 25.0 micrometers that responds to a voice pressure wave.

17. The portable device of claim 16, wherein the pressure sensor comprises a set of piezoelectric gauges arranged in proximity to the membrane portion and configured to detect resistivity changes induced by the voice pressure waves.

18. The portable device of claim 17, wherein the gauges are connected in a Wheatstone bridge configuration.

19. The portable device of claim 16, wherein the pressure sensor comprises a first ring oscillator comprising an odd number of CMOS inverters and configured such that its output frequency increases when the pressure increases.

20. The portable device of claim 19, wherein the pressure sensor comprises a second ring oscillator comprising an odd number of CMOS inverter and configured such that its output frequency decreases when the pressure increases.

21. The portable device of claim 20, wherein the ratio of the first ring oscillator frequency and the second ring oscillator frequency is used to minimize temperature effects and optimize pressure sensitivity.

22. The portable device of claim 15, wherein the pressure sensor comprises a first capacitor and second capacitor.

23. The portable device of claim 22, wherein the capacitance of the first capacitor varies responsive to voice pressure waves and the capacitance of the second capacitor remains substantially constant responsive to voice pressure waves.

24. The portable device of claim 22, wherein first capacitor and second capacitor are connected in a half bridge configuration and connected to a signal processing unit configured to produce a voltage signal indicative of the change in capacitance of first capacitor.

25. The portable device of claim 15, further comprising a compound in contact with the active layer wherein the compound transfers voice pressure waves to the sensitivity element of the pressure sensor.

26. The portable device of claim 25, wherein the compound comprises room temperature vulcanized silicon.

27. The portable device of claim 1, further comprising a communication interface unit comprising a portion of the integrated circuit and connected to the voice processing circuit, wherein the interface unit includes a serial interface for communicating information through contacts according to an at least one of an ISO and USB protocol.

28. The portable device of claim 1, further comprising a battery power source to power the device.

29. The portable device of claim 1, further comprising a wireless port configured to receive an electromagnetic signal to power the device.

30. The portable device of claim 1, wherein the communication interface unit further includes a wireless port for communicating information to and from the device in contactless applications.

31. A method of processing voice waves with a portable device, comprising:

    generating an electrical signal with a voice sensor of the portable device responsive to speech spoken into the voice sensor;

    analyzing the electrical signal with a signal processing circuit of the portable device to detect characteristics of the voice; and

    comparing the detected voice characteristics with information stored in a memory of the portable device and indicative of a user's voice.

32. The method of claim 31, further comprising, responsive to the comparison between the detected voice characteristics and the information indicative of the user's voice, identifying the user.

33. The method of claim 31, further comprising, responsive to the comparison between the detected voice characteristics and the information indicative of the user's voice, authenticating the user.

34. The method of claim 33, wherein authenticating the user includes comparing the characteristics of the voice sensor signal to information stored in the memory indicative of the user speaking a password.

35. The method of claim 31, further comprising executing a voice-transmitted command.

36. The method of claim 31, further comprising encrypting the electrical signal.

37. The method of claim 31, further comprising recognizing the content of the user's speech.

38. The method of claim 31, wherein generating the electrical signal includes measuring variations in an electrical parameter caused by the voice pressure wave modifying an electrical characteristic of a pressure sensor of the integrated circuit.

39. The method of claim 38, wherein generating the electrical signal comprises using a first electrical parameter that increases with the voice pressure wave and a second electrical parameter that decrease or remains constant with the pressure wave and comparing the first and second parameters to determine the magnitude of the pressure wave.

40. The method of claim 39, wherein the first and second electrical signals comprise the voltage across first and second piezo resistors respectively.

41. The method of claim 39, wherein the first and second electrical signals are the capacitance of a first capacitor and the capacitance of a second capacitor respectively.

42. The method of claim 39, wherein the first and second electrical signals are the frequencies of first and second ring oscillators respectively.

43. The method of claim 31, further comprising, responsive to the comparison between the detected voice characteristics and the stored information, enabling communication between the portable device and the external data processing system.

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44. The method of claim 43, wherein communication between the processing system and the smart card is done via at least one of an ISO port , a USB port , and a wireless port.